CLAIMS

We claim:

1. An optical interleaver comprising:

a laterally divided housing, wherein the laterally divided housing further includes two lateral portions;

at least two interferometers wherein at least one interferometer is positioned within each of the two lateral portions of the laterally divided housing; and

at least two supports positioned between the two lateral portions of the laterally divided housing.

2. The optical interleaver of claim 1, wherein the two lateral portions of the laterally divided housing are cylindrically shaped hollow structures.

3. The optical interleaver of claim 2, wherein the at least two supports are positioned at circumferential extremes between the two lateral portions of the laterally divided housing and are equally angularly spaced apart from one another.

4. The optical interleaver of claim 1, wherein the at least two interferometers are Michelson type interferometers.

5. The optical interleaver of claim 1, wherein the at least two interferometers are Sagnac type interferometers.

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6. The optical interleaver of claim 1, wherein the at least two interferometers are Fabry Perot interferometers further including two reflective devices facing one another.

7. The optical interleaver of claim 1, wherein the plurality of supports comprise at least three supports positioned between the outer edges of the two lateral portions of the laterally divided housing such that the supports create a fixed distance and a fixed angle between the two lateral portions.

8. The optical interleaver of claim 1, wherein the at least two supports are formed from a material that changes dimensions in a predictable manner in response to the application of a laser beam.

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9. An optical interleaver calibration system comprising:

a laterally divided housing, wherein the laterally divided housing further includes two lateral portions, wherein at least one interferometer is within each of the two lateral portions, and wherein at least two supports are positioned between the two lateral portions of the laterally divided housing;

a detection mechanism disposed at one lateral end of the laterally divided housing;

a waveguide positioned to insert a WDM input signal at a second end of the laterally divided housing such that the WDM input signal is transmitted through the at least one interferometer from each of the two lateral portions such that a resulting set of signals impacts the detection mechanism; and

a laser system that is configured change the dimensions any of the at least two supports, wherein the laser system is controlled based on data obtained by the optical detection mechanism.

10. The optical interleaver calibration system of claim 9, wherein the two lateral portions of the laterally divided housing are cylindrically shaped hollow structures.

11. The optical interleaver calibration system of claim 9, wherein the interferometers are Fabry Perot interferometers further including two reflective devices facing one another.

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12. The optical interleaver calibration system of claim 9, wherein the interferometers are Michelson type interferometers.

13. The optical interleaver calibration system of claim 9, wherein the interferometers are Sagnac type interferometers.

14. The optical interleaver calibration system of claim 10, wherein the at least two supports are positioned at circumferential extremes between the two lateral portions of the laterally divided housing.

15. The optical interleaver calibration system of claim 9, wherein there are four supports positioned at the outer edges between the two lateral portions of the laterally divided housing such that the supports create a fixed distance between the two lateral portions and a fixed angle between the two lateral portions.

16. The optical interleaver calibration system of claim 9, wherein the at least two supports are web like materials that change dimensions in a predictable manner in response to the application of a laser beam.

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17. A method of calibrating an optical interleaver, comprising the acts of:

obtaining an optical interleaver that includes:

two optical interferometers; and

a plurality of supports that establish a relative position of the two optical inteferometers; and

in response to data indicative of the relative position of the two optical interferometers, selectively applying a laser beam to at least one of the plurality of supports, thereby adjusting the relative position of the two optical interferometers and calibrating the optical interleaver.

18. The method of claim 17, wherein the method further includes an act of positioning a detection mechanism at one lateral end of the laterally divided housing such that the detection mechanism generates the data indicative of the relative position of the two optical interferometers.

19. The method of claim 18, wherein the method further includes an act of transmitting the data indicative of the relative position of the two optical interferometers to a computer device that is operably connected to a laser system.

20. The method of claim 17, wherein the method further includes an act of transmitting an input signal into the optical interleaver such that the input signal is transmitted through the two optical interferometers.

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21. The method of claim 17, wherein the act of selectively applying a laser beam to at least one of the plurality of supports changes the physical dimensions of the support at which the laser beam is applied.

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22. A method of calibrating an optical interleaver, comprising the acts of:

transmitting an input optical signal having multiple channels into an optical interleaver that includes:

two optical interferometers; and

a plurality of supports that establish a relative position of the two optical inteferometers; and

in response to data obtained by detecting an output optical signal generated by the optical interleaver, selectively applying a laser beam to at least one of the plurality of supports, thereby adjusting the relative position of the two optical inteferometers and calibrating the optical interleaver.

23. The method of claim 22, wherein the method further includes an act of positioning a detection mechanism at one lateral end of the laterally divided housing such that the detection mechanism generates the data indicative of the relative position of the two optical interferometers.

24. The method of claim 23, wherein the method further includes an act of transmitting the data indicative of the relative position of the two optical interferometers to a computer device that is operably connected to a laser system.

25. The method of claim 22, wherein the input optical signals is transmitted through the two optical interferometers of the optical interleaver.

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26. The method of claim 22, wherein the act of selectively applying a laser beam to at least one of the plurality of supports changes the physical dimensions of the support at which the laser beam is applied.

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